

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte STEVEN M. HOFFMAN, TIMOTHY M. GARTON and DAWN M. GALECKI

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Appeal No. 1997-0384  
Application 08/086,498

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ON BRIEF

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Before HAIRSTON, JERRY SMITH and FRAHM, Administrative Patent Judges.

FRAHM, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1, 6 to 9, 11, 12, 15, 18, 20, and 21. Claims 2 to 5, 10, 13, 14, 16, 17, and 19 have been canceled.

BACKGROUND

The subject matter on appeal is directed to the field of liquid crystal display (LCD) devices, and particularly to a

display circuit and display signal generator used in controlling the scrolling of characters across a display screen. Scrolling is effected by first displaying a character in a given location, followed by a "blanking" period where the character is blanked at the given location for a length of time, and lastly a different character is displayed at the same given location. In this manner a word, symbol, or number can be moved across an LCD screen. As indicated in the specification (pages 2 and 4), appellants recognized that prior art LCD's suffered from difficulties in scrolling such as interference between sequentially generated characters which are being displayed on a display device (see specification, page 4). Appellants have recognized that such "runover" or "interference" degrades image quality of scrolled images on the display (see specification, page 4). To overcome this problem, appellants provide a display signal generator to perform a blanking operation for a time interval proportional to the decay rate of the display screen, thereby overcoming the problem in the prior art of interference between sequential characters which are displayed in the same image frame during a scrolling operation.

As further discussed, infra, we find that the applied references to Tsunoda and Hilsum, whether taken singly or in combination, fail to teach or suggest at least the feature of blanking during scrolling for a time proportional to a decay rate

of the display as defined in each of independent claims 1 and 18 on appeal.

Representative independent claim 1 is reproduced below:<sup>1</sup>

1. A display circuit for scrolling information image frames across a display area having a first end and a second end such that message images move across the display area, the first and second ends on opposite ends of the display area, the display circuit comprising:

a liquid crystal display element having a persistent display screen including the display area to display the information image frames thereupon, the persistent display screen having an associated image decay rate;

a display signal generator coupled to the display element to generate display signals which cause the display element to sequentially display in the display area a plurality of information image frames which are periodically moved a

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<sup>1</sup>We note that the bracketed and underlined changes made in representative claim 1 are included herein so as to best demonstrate our understanding of what is being claimed as it is described in appellants' specification. Our understanding of what is being claimed is that no information image is being displayed at the display element during the blanking interval.

predetermined distance from the first end toward the second end during blank intervals, the display signal generator generating display signals which [do not] control the display element to not display an information image during the blank interval, the blank interval being proportional to the decay rate of the display screen such that each information image fades substantially from the display area before the information image is moved to reduce interference between information image frames; and

a liquid crystal display device controller coupled to the display signal generator to receive the display signal generated by the display signal generator and to generate control signals to power at least selected portions of the liquid crystal display element responsive to the display signal.

The following references are relied on by the examiner:

Hilsum et al. (Hilsum)	3,972,040	Jul. 27,
1976		
Tsunoda	4,646,081	Feb. 24,
1987		

Claims 1, 2, 6 to 12, and 15 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite (see final rejection, page 2). This rejection was not repeated in the Answer, and accordingly this rejection is taken by us as having been withdrawn. See MPEP § 1208.

Claims 1, 6 to 9, 11, 12, 15, 18, 20, and 21 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Tsunoda in view of Hilsum.

Rather than repeat the positions of appellants and the

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examiner, reference is made to the Brief and the Answer for the respective details thereof.

#### OPINION

It is our view that the prior art relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1, 6 to 9, 11, 12, 15, 18, 20, and 21. In reaching our conclusion on the issues raised in this appeal, we have carefully considered appellants' specification and claims, the applied patents, and the respective viewpoints of appellants and the examiner. As a consequence of our review, we are in general agreement with appellants (Brief, page 4) that the claims on appeal would not have been obvious to one of ordinary skill in the art at the time the invention was made in light of the collective teachings of Tsunoda and Hilsum. For the reasons which follow, we will not sustain the decision of the examiner rejecting claims 1, 6 to 9, 11, 12, 15, 18, 20, and 21 under 35 U.S.C. § 103.

The examiner relies upon Tsunoda as showing all of the recited features of representative claim 1 of a display

circuit for scrolling information image frames across a liquid crystal display, except for the details of the blanking interval recited in the claim. The examiner admits that "Tsunoda does not address consideration of accommodating decay rates to prevent interference" between images on a LCD (Answer, page 8). The examiner goes on to admit that "Tsunoda does not teach the blanking interval being proportional to the decay rate of the display screen" (Answer, page 6) as called for in representative claim 1, and then relies upon the secondary reference to Hilsum for this feature. The examiner states that it would have been obvious to modify the display circuit of Tsunoda with the blanking pulse of Hilsum (Hilsum's blanking pulse being proportional to the decay rate of the screen) "so that the display elements of the images are not overlapped" (Answer, page 6).

We note that Hilsum has nothing to do with scrolling in a LCD, and instead relates to refreshing in a LCD (see Hilsum, column 1, lines 4 to 5). Refreshing concerns trying to keep an element in the display activated for a given length of time so that an image can be seen. Scrolling on the other hand, concerns keeping an element unactivated (i.e., blanked) for a

given length of time in order to scroll an image across a screen. Thus, scrolling is concerned with interference between image frames, whereas refreshing is not.

As specifically recognized by Hilsum, "[r]efreshing is to be distinguished from resetting or rewriting which involves changing the information or scene displayed" (column 1, lines 41 to 43). We note that the scrolling of appellants' claims on appeal involves just that, rewriting or changing the information displayed, so that an image appears to scroll across the screen. Accordingly, although Hilsum discusses a decay rate in relation to a display, Hilsum concerns refreshing (activating a display element for a given time) and not scrolling (unactivating or blanking a display element for a given time). Indeed, the portion of Hilsum relied on by the examiner actually describes a display element (element 3<sub>11</sub> of Figure 3) as being "in the operated state for a period determined by the length of the pulses plus the decay rate of the particular display effect used after removal of the pulses" (Hilsum, column 4, lines 58 to 61).

Appellants argue (Brief, page 4) that Hilsum does not concern scrolling images on a display. We agree. As

discussed, supra, Hilsum concerns the refresh of a display element (3<sub>11</sub> in Figure 3) and not blanking such as used in scrolling. Therefore, we find that there is no motivation to combine these references since Hilsum (refreshing) teaches away from Tsunoda (scrolling), and that to combine these two references in order to achieve appellants' claimed invention would require the use of hindsight. Only appellants have recognized the problem in displays which scroll information that interference occurs between image frames (see specification, pages 2 and 4). Neither Tsunoda nor Hilsum discusses interference between display elements during a scrolling operation.

We agree with appellants (Brief, page 4) that there would have been no motivation to combine Tsunoda and Hilsum in order to achieve appellants' recited invention. We find that the examiner's motivation for making the combination in the statement of the rejection (Answer, page 6) fails to provide an explanation for why the ordinary artisan, looking at Tsunoda and Hilsum, would have been motivated to blank for an interval proportional to a screen decay rate to reduce interference during scrolling as recited in the claims on



appeal. Only Hilsum discusses decay rate, and there would have been no need in Hilsum to prevent interference or overlapping of display elements since Hilsum does not pertain to scrolling. As discussed earlier, Tsunoda concerns blanking during scrolling to prevent interference and Hilsum pertains to the opposing problem of refreshing by sustaining an image, not blanking it. One of ordinary skill in the art concerned with scrolling would not look to Hilsum to solve the problem of interference since Hilsum pertains to refreshing or sustaining display elements, and therefore teaches away. Because we find that the examiner has not properly made a prima facie case of obviousness, we will reverse the decision of the examiner rejecting claims 1, 6 to 9, 11, 12, 15, 18, 20, and 21 under 35 U.S.C. § 103.

In light of the foregoing, the differences between the subject matter recited in the claims and the references are such that the claimed subject matter as a whole would not have been

obvious within the meaning of 35 U.S.C. § 103. Accordingly,

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we shall reverse the standing rejection of claims 1, 6 to 9,  
11, 12, 15, 18, 20, and 21 on appeal.

CONCLUSION

The decision of the examiner rejecting claims 1, 6 to 9,  
11, 12, 15, 18, 20, and 21 under 35 U.S.C. § 103 over Tsunoda  
in view of Hilsum is reversed.

REVERSED

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
JERRY SMITH	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
ERIC FRAHM	)	
Administrative Patent Judge	)	

EF/pgg

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